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## **REMARKS**

### **I. Status of the Claims**

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

In the specification, paragraphs have been amended on pages 41, 42, 70, 71, 72, 74, 76, 80, 88, 90, 91, 96.

Claims 1 – 8, 18 – 20 and 26 – 27 are requested to be cancelled. The cancellation of claims does not constitute acquiescence in the propriety of any rejection set forth by the Examiner. Applicants reserve the right to pursue the subject matter of the canceled claims in subsequent divisional applications.

Claims 11, 14 and 16 are currently being amended. Support for the amendments to claims 11, 14 and 16 is found in Figure 3 and SEQ ID NO: 36.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 9 – 17 and 21 – 25 are now pending in this application.

### **II. Response to Issues Raised by Examiner in June 30, 2004 Interview**

#### **Summary**

The Examiner acknowledges that to correctly view the sequence depicted in Figures 3a-3d, the pages should be placed side by side, as indicated by the illustration on page 3/15 of the Figures. Further to the Examiner's request, Applicants have amended the brief

description of Figure 3 to recite “[f]igure 3a should be viewed adjacent to Figure 3b and Figure 3c should be viewed adjacent to Figure 3d.”

The Examiner also notes that residue 40 is a tryptophan in SEQ ID NO: 36 and a histidine in Figure 3a. As shown in Figure 3a (see Exhibit 1), the codon encoding amino acid residue 40 is TGG, which codes for tryptophan. However, due to a clerical error, histidine is listed as amino acid residue 40 in Figure 3a. Amino acid residue 40 in SEQ ID NO: 36 is correctly listed as tryptophan. Applicants will file corrected drawings shortly. No new matter has been added.

### **III. Response to Issues Raised By Examiner In July 2, 2004 Communication**

The Examiner states that “the claim(s) are directed to the amino acid sequences listed in Figure 3 which do not correspond to any of the sequences in the sequence listing nor do they have their own sequence identifier. In addition, the specific sequence that corresponds to Figure 3 needs to be recited in the claim(s) with the sequence identifier (i.e. SEQ ID NO), see claim 11.” As discussed in detail above, Applicants note that SEQ ID NO: 36 corresponds to Figure 3. Applicants have amended the claims by replacing the term “Figure 3” with “SEQ ID NO: 36.”

### **IV. Issues Related to Figure 2 and SEQ ID NOS 33 and 34**

Attached as Exhibit 2 is a copy of Figures 2a-f showing errors that have been corrected in the attached Sequence Listing (SEQ ID NO: 34). The errors relate to incorrect amino acids encoded by the recited codon. For example, the codon encoding amino acid residue 49 in Figure 2a is TTC, which codes for phenylalanine. However, due to a typographical error, tyrosine is listed as amino acid residue 49 in Figure 2a. Applicants will file corrected drawings shortly. No new matter has been added.

### CONCLUSION

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.


The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date

2 August 2004

By



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## Patent Application Publication Nov. 14, 2002 Sheet 10 of 15 US 2002/0169303 A1

(35)

(36)

1 GAATTCGGCACGAGCGGGCTGGACCTTGCTCGCCCGGGCGCCATGAGCCGCGAGCTGGACTCGG  
1 M S R S L D S

121 CGCCGGCGAGTTCAGCGACATCCAGGCCTGCTCGCCCGCCTGGAGGCTGACGGCGTGTGCTCCA  
26 A G E F S D I Q A C S A A H K A D G V C S  
W

241 GCCTTATGATCAGACGCGAGTAATCCTCTCCCTGCTCCAGGAAGAGGGACACAGCGACTACATTA  
66 P Y D Q T R V I L S L L Q E E G H S D Y I

361 ACCCTTGCCTCACACCTGCTAGACTTCTGGAGACTGGTCTGGGAGTTTGGGGTCAAGGTGATCC  
106 P L P H T L L D F W R L V W E F G V K V I

481 CCAGGAGCAGGAGCCACTGCAGACTGGGCTTTTCTGCATCACTCTGATAAAGGAGAAGTGGCTGA  
146 Q E Q E P L Q T S L F C I T L I K E K W L

601 TGTGTACCAGCTACAGTATATGTCTGGCCAGACCGTGGGGTCCCCAGCAGTCTGACCACATGC  
186 V Y Q L Q Y M S W P D R G V P S S P D H M

721 TGTCCACTGCAGTGGGGTTGTGGGCGAACAGGCGTCTGTGCACCGTGGATTATGTGAGGCAGC  
226 V H C S A G C G R T G V L C T V D Y V R Q

841 GATGAGGAAGCAGCGGCCTGCGGCGTGCAGACAGAGGAGCAGTACAGGTTCTGTACCACACGG  
266 M R K Q R P A A V Q T E E Q Y R F L Y H T

961 CAAAGAGAATTGTGCCCCACTCTACGACGATGCCCTCTTCTCCGGACTCCCCAGGCACTTCTCG  
306 K E N C A P L Y D D A L F L R T P Q A L L

1081 GGGCCACGCCATGGCTGACACCTADGCGGAGGAGCAGAAGCGCGGGGCTCCAGCGGGCGCGGGA  
346 G H A M A D T Y A E E Q K R G A P A G A G

1201 CTACAGCAAGGTGACGCGCGCGCCAGCGACCCGGGGCGCACGCGGAGGACGCGAGGGGGACGC  
386 Y S K V T P R A Q R P G A H A E D A R G T

1321 CGTGGCGGGTGGAGCTCAGACCGGTGGGCTAGGTTTCAACCTGCGCATTGGGAGGCCGAAGGTC  
426 V A G G A Q T G G L G F N L R I G R P K G

1441 TGTTCCTCTTGTGAGCTCGGACTGCTGATGCCCGGTGCTGCTGAGCGCCGTGCCGAGAATGGA  
1561 TGCCCAATGACTGTAGCATTCAAGGCTTGAGGCTGGAGGAGGTAGCTAGGGTATAGTGGCTGGTG  
1681 TTATGAAGGGGAGAAGGGACAGATGAGCTTCCGGAGACTGCTCTCCTCACCACACAGCACTAGTC  
1801 GTGGATGGACACTTCGCCATCCAGGCAGAACTAAGCCAGGCATAACCACAGCCAAGCAGATTAAC  
1921 AACCTGGACAGACAGCCAAAGCTTCAGAGATACAGTCCACAGGTGGACAAAGGATCCCCAGCCA  
2041 AAACACAGCCCCAAAAGACAGACATCTCTGCTAGCTGGACAGCCAGGTGGACCCCTAAGTTAG  
2161 TCAGACCCCACTCCCTCAGGTGGGCTGGCTGGCTGACAGACCTTCTGGCCAGACAGACTCCTAAC

Fig. 3a

AATTCGGGGCGCCAGTCCCGCTCCGCGCCGCGCCGCTCCGCTCCGGCTCGGGCTCCGGCT  
CGACCTCAACCATGGCCCGTGCCAGGCGCTCGTGCTGGCACTCACCTTCCAGCTCTGC  
1                    M A R A Q A L V L A L T F Q L C  
GTGCCCTGCGAGTACAGCCAGGCCAGTACGATGACTTCAGTGGGAGCAAGTGCGAATC  
37 V P C E Y S Q A Q Y D D F Q W E Q V R I  
TCCAGCATGCCCCAGGCCAGCGAGCCCATGTTCATCTTCCAGAGCCTGAGCGAGAATGAT  
77 S Q H A P Q R A H V I F Q S L S E N D  
CGGTCTACGTGCGCGTTAATGGGGGCCCTGGCGAGTGCTGTGTGGAATATGACTGGA  
117 R V Y V R V N G G P L A S A V W N M T G  
TATCAGGTGCTGTTTGAGGCCCTCATCTCCCAGACCGCAGGGGCTACATGGGCCTAGAT  
157 Y Q V L F E A L I S P D R R G Y M G L D  
GTGGAGGTCAACGCGGGCCAGAACGCGTCGTTCCAGTGCATGGCCGCGGGAGAGCCCATG  
197 V E V N A G Q N A S F Q C M A A G E P N  
ACATCAGCCACCGGCTTCCTGGCCACTTTCCCGCTGGCTGCCGTGAGCCGCGCCGAGCAG  
237 T S A T G F L A T F P L A A V S R A E Q  
ATCGTCAAGGAGCCCCCAACTCCCATCGCGCCCCACAGCTGCTGCGTGCTGGCCCCACC  
277 I V K E P P T P I A P Q L L R A G P T  
GAGATTGAGTACCGCATGGCGCGGGGCCCTGGGCTGAGGTGCAAGCCGTGAGCCTGCAG  
317 E I E Y R M A R G P W A E V K A V S L Q  
CGTCCCGAGACGGCGGCACTGGCGGCTGGGCCACCCCTCATCAGCCGACCAAATGCGC  
357 R P G D G G T G R W A T P H Q P H Q M R  
CTGCAGTGGGAACCACTGGGCTACAACGTGACGCGTTGCCACACCTATACTGTGTGCTG  
397 L Q W E P L G Y N V T R C H T Y T V S L  
GAGCAAGGTGTGAGCCGCTACACCATCAAGAACCTGCTGCCCTATCGGAACGTTACGTC  
437 E Q G V S R Y T I K N L L P Y R N V H V  
GATGAGGATGTGCCAGTGGGATTGCAGCCGAGTCCCTGACCTTCACTCCACTGGAGGAC  
477 D E D V P S G I A A E S L T P T P L E D

Fig. 2a

## Patent Application Publication Nov. 14, 2002 Sheet 5 of 15

US 2002/0169303 A1

CGCCTCGGGCTGGGCTCGGGCTCGGGGGCGGGTCCCCGGCGCGGGCCCCGGGACGCGC 120  
GCGCCGAGACCGAGACTCGGCAGCTGGCTGCACCTTGAGGAGGCAAGTGACCCAGCA 240  
A P E T E T P A A G C T F S E A S D P A  
CACCTGGCACCCGGGCACCTGCGGACCTGCCCCACGGCTCCTACTTGATGGTCAACACT 361  
H F G T R A P A D L P H G S Y L M V N T  
ACCACTGTGTGCAGTTCAGCTACTTCCTGTACAGCCGGGACGGCACAGGCGGCACCCTG 481  
T H C V Q F S Y F L Y S R D G T G G T L  
TCCACGGCCGTCA GTGGCACCAGGCTGAGCTGGCTGTCAGCACTTTCTGGCCCAATGAA 601  
S H G R Q W H Q A E L A V S T F W P N E  
GACATCCTGCTTCTCAGCTACCCCTGCGCAAAGGCCCCACACTTCTCCCGCTGGGCGAC 721  
D I L L L S Y P C A K A P H F S R L G D  
CGCAACGCTTCCTCTTGAACGGCAGAGGGGGCCCTGGTGCCGGCGGGCGTTTCGGC 841  
R Q R F L L Q R Q S Q A L V P A Q A F G  
GACCTGTACCGCTGTGTGTCCAGGCCCGCGCGGGCGGTCTCTAACTTCCGAGCTC 961  
D L Y R C V S Q A P R G G V S N F A E L  
TACCTCATCATCCAGCTCAACACCAACTCCATCATTGGCGACGGGCGGATCGTGCGCAAG 1081  
Y L I I Q L N T N S I I G D G P I V R K  
ACCTACAAGCTGTGGCACCTCGACCCCGACACAGACTATGAGATCAGCGTGCTGCTCACG 1201  
T Y K L W H L D P D T E Y E I S V L L T  
AGAGCCCATGAGGGCCCCAAAGGCCTGGCTTTTGTGAGATCCAGGCCCGTCAGCTGACC 1321  
R A H E G P K G L A F A E I Q A R Q L T  
TGCTATCACTACACCCTGGGCAGCAGCCACAACCAGACCATCCGAGAGTGTGTGAAGACA 1441  
C Y H Y T L G S S H N Q T I R E C V K T  
AGGCTTGTCTCACTAACCCTGAGGGGGCGCAAGAGGGCAAGGAGGTCACTTTCCAGACG 1561  
R L V L T N P E G R X E G K E V T F Q T  
ATGATCTTCTCAAGTGGGAGGAGCCCCAGGAGCCCAATGGTCTCATCACCAGTATGAG 1681  
H I F L K W E E P Q E P N G L I T Q Y E  
M

Fig. 2b

## Patent Application Publication Nov. 14, 2002 Sheet 6 of 15 US 2002/0169303 A1

517 ATCAGCTACCAGAGCATCGAGTCATCAGACCCGGCAGTGAACGTGCCAGGCCACGACGT  
I S Y Q S I E S S D P A V N V P G P R R

557 ACCTACCTGTTCTCCGTGCGGGCCCGCACAGGCAAAGGCTTCGGCCAGGCGGCACTCACT  
T Y L F S V R A R T G K G F G Q A A L T

597 GCGAGTCTGAGAACACCATCACCGTGCTGCTGAGGCCGGCACAGGGCCGCGGTGCGCCC  
G E S E N T I T V L L R P A Q G R G A P

637 TGGACAGGACTGCTTCCAGTGCCATTGACCTTCGAGGCGGCGCTGGCCCCAGGCTGGTG  
W T Q L L P S A I D L R G G A G P R L V

677 GGTGACAACCAGACCTACCGAGGCTTCTGGAACCCACCACTTGAGCCTAGGAAGGCCTAT  
G D N Q T Y R G F W N P P L E P R K A Y

717 ATTGCCAGGAAAGCTGCCTGCAAGGAAAGCAAGCGGCCCTGGAGGTGTCCAGAGATCG  
I A R K A A C K E S K R P L E V S Q R S

757 CTGGGTGCCATCATTGTTCATCATCCGCAAAGGGAAGCCGGTGAACATGACCAAGGCCACC  
L G A I I V I I R K G K P V N H T K A T

797 CAGAGCACCTGCAGGAGGACGAGCGGCTGGGCCTGTCCTTCATGGACACCCATGGCTAC  
Q S T L Q E D E R L G L S F M D T H G Y

837 TCCCCGAGGCGTCCCTGTGGCCGGAAGGGCTCCCATACACACGGGGCAGCTGCACCCCT  
S P R R P C G R K G S P Y H T G Q L H P

877 GGCTTCAAGCAGGAGTATGAGAGCTTCTTTGAAGGCTGGGACGCCACAAAGAAGAAAGAC  
G F X Q E Y E S F F E G W D A T K K K D

917 CACCGATGCTGGGAGACCCCAATGCCGACTACATTATGCCAACTACATAGATGGTTAC  
H P M L G D P N A D Y I M A N Y I D G Y

957 TGGCGTATGGTGTGGCAGGAGCACTGTTCCAGCATCGTCATGATCACCAAGCTGGTCGAG  
W R M V W Q E H C S S I V M I T K L V E

997 AAGATTATGCTGGTGAAGACAGAGACCCTGGCTGAGTATGTCGTGCGCACTTTTGCCCTG  
K I M L V K T E T L A E Y V V R T F A L

Fig. 2c



ACCATCTCCAAGCTCCGCAATGAGACCTACCATGTCTTCTCCAACCTGCACCCAGGCACC 1801  
T I S K L R N E T Y H V F S N L H P G T  
GAGATAACCACTAACATCTCTGCTCCAGCTTTGATTATGCCGACATGCCGTACCCCTG 1921  
E I T T N I S A P S F D Y A D M P S P L  
ATCAGTGTGTACCAGGTGATTGTGGAGGAGGAGCGGGCGCGAGGCTGCGGCGGGACGAGG 2041  
I S V Y Q V I V E E E R A R G C G G T R  
CACTACTTCGGGGCCGAAGTGGCGGCCAGCAGTCTACCTGAGGCCATGCCCTTTACCGTG 2161  
H Y F G A E L A A S S L P E A M P F T V  
CTCATCTACTTCCAGGCAGCAAGCCACCTGAAGGGGGAGACCCGGCTGAATTGCATCCGC 2281  
L I Y F Q A A S H L K G E T R L N C I R  
GAGGAGATGGGGCTTATCCTGGGCATCTGTGCAGGGGGGCTTGCTGTCTCATCTTCTC 2401  
E E M G L I L G I C A G G L A V L I L L  
GTCAACTACCGCCAGGAGAAGACACACATGATCAGCGCCGTGGACCGCAGCTTCACAGAC 2521  
V N Y R Q E K T H M S A V D R S F T D  
AGCACCCGGGGAGACCAGCGCAGCGGTGGGGTCACTGAGGCCAGCAGCCTCCTGGGGGGC 2541  
S T R G D Q R S G G V T E A S S L L G G  
GCGGTGCGTGTGCGAGACCTTCTGCAGCACATCAACCAGATGAAGACGGCCGAGGGTTAC 2761  
A V R V A D L L Q H I N Q M K T A E G Y  
AAGGTCAAGGGCAGCCGGCAGGAGCCAATGCCTGCCTATGATCGGACCGAGTGAAGCTG 2881  
K V K G S R Q E P M P A Y D R H R V K L  
CACAGGTCAAAGCACTTCATAGCCACTCAAGGCCGAAGCCTGAGATGGTCTATGACTTC 3001  
H R S N H F I A T Q D P K P E M V Y D F  
GTGGGCAGGGTGAAATGCTCACGGTACTGGCCGGAGGACTCAGACACCTACGGGGACATC 3121  
V G R V K C S R Y W P E D S D T Y G D I  
GAGCGGAGAGGCTACTCTGCCCGGCACGAGGTCCGCCAGTCCCACTTCACAGCGTGGCCA 3241  
E R R G Y S A R H E V R Q S H F T A W P

Fig. 2d

1037 GAGCATGGGCTCCCCTACCATGCCACGGGGCTGCTGGCTTTCATCCGGCGGGTGAAGGCC  
E H G V P Y H A T G L L A F I R R V K A

1077 CGTTGCTATATCGTCCTGGATGTGATGCTGGACATGGCAGAGTGTGAGGGCGTCTGTTGAC  
G C Y I V L D V M L D M A E C E G V V D

1117 CAGTACATCTTCATTCATGATGCAATCCTGGAGGCCTGCCTGTGTGGGAGACCACCATC  
Q Y I P I H D A I L E A C L C G E T T I

1157 TCCTCCAGCTGCGGGAAGAGTTCCAGACGCTGAACTCGGTACCCCGCGCTGGACGTG  
S S Q L R E E F Q T L N S V T P P L D V

1197 CTGCCGCCGACCGCTGCCTGCCCTTCTCATCTCCACTGATGGGGACTCCAACAACCTAC  
L P P D R C L P F L I S T D G D S N N Y

1237 CCGCTGCAGAGCACCAAGCCGACTTCTGGCGGCTGGTCTACGATTACGGGTGCACCTCC  
P L Q S T T P D F W R L V Y D Y G C T S

1277 CCAGAGCCAGGCCGGCAGCAATATGGCCTCATGGAGGTGGAGTTTATGTCCGGGCACAGCT  
P E P G R Q Q Y G L M E V E F M S G T A

1317 GACCTGCTGGTGCAGCACTTCCAGTTCCTGCGCTGGTCTGCATACCGGGACACACCTGAC  
D L L V R H F Q F L R W S A Y R D T P D

1357 GATGGGCGCACCATCGTGCCTGCTAAACGGGGGAGGAAGCAGCGGCACCTTCTGCGCC  
D G R T I V H C L N G G G R S G T F C A

1397 CAAACCTCCGGAAGTACAAACCAACATGGTGGAGACCATGGATCAGTACCACTTTTGC  
Q T L R N Y K P N M V E T M D Q Y H F C

GGGCACCCACTGCACACTCAGGGCCAGAACCCACCATCCTGGACTGGCGAGGAAGATCAGT  
TCTTGCTCCCCCTTCCACTGTGGGCAGGGCCTTTCGCTTGTCCCATGGGCGGGTGGTGGG  
GTGCTGAGAGGCCTGGTGTGCTGGCAGAGTGACAAAGGCTCAGGACGGCTGGCTCTGG  
GCAGAGAGCATCCAGGCCAAGGTTCCCACTCAGCCTGCCCTCTGCATGTGGGTAGAG  
AGCAGGTCTCAATTCTGATAGCCAGTGGGGCACACTGACTGTCTCTCCAGGGGAAGTGC  
CACTTGCTTCCCTGATATGTGCTCTGACTTCCCTGAACCAGGATCTGCCTATTACTGCTG  
CCTCTTCTTTAATCTTCAGGCCTCACTGGCCTGTCTGCTCAGCTTGGGCCAGTGACAA  
CCGTTGTGGGAGGGGAGTGTAGAGCAGGGCTGGTCATACCTCTGGAGTTTACAGAGCA  
TCTCTTTAAAATGGGGCAGGCCACACCCCATTCGCTGCCTCAATTTCCCATCTGTAAA  
TGTAAGCGCTTTGTAAATAACGTGCTCTCTGAATGCCAAAAAAAAAAAAACAAAAAA

Fig. 2e

TCCACCCACCTGATGCCGGGCCATTGTTCATCCACTGCAGCGCGGGCACC GGCCGCACA 3361  
S T P P D A G P I V I H C S A G T G R T

ATTTACAACCTGTGTGAAGACTCTCTGCTCCGGCGTGTCAACATGATCCAGACTGAGGAG 3481  
I Y N C V K T L C S R R V N M I Q T E E

CCTGTCACTGAGTTCAAGGCCACCTACAAGGAGATGATCCGATTGATCCTCAGAGTAAT 3601  
P V S E F K A T Y K E M I R I D P Q S N

GAGGAGTGCAGCATCGCCCTGTTGCCCGGAACCGCGCAAGAACC GCAGCATGACGTC 3721  
E E C S I A L L P R N R D K N R S H M D V

ATTAATGCAGCCCTGACTGACAGCTACACACGGAGGTGCGCCTTCATGGTGACCCTGCAC 3841  
I N A A L T D S Y T R R S A F M V T L H

ATCGTCATGCTCAACCAGCTGAACCAGTCCAACCTCCGCTGGCCCTGCCTGCAGTACTGG 3961  
I V M L N Q L N Q S N S A W P C L Q Y W

GATGAAGACTTAGTGGCTCGAGTCTTCCGGGTGCAGAACATCTCTCGGTTGCAGGAGGGA 4081  
D E D L V A R V F R V Q N I S R L Q E G

TCCAAGAAGCCTTCTTGACCTGCTGGCTGAGGTGGACAAGTGGCAGGCCGAGAGTGGG 4201  
S K K A F L H L L A E V D K W D A E S G

TGCGCCACGGTCTCGAGATGATCCGCTGCCACAACCTGGTGACGTTTCTTTGCTGCC 4321  
C A T V L E M I R C H N L V D V F F A A

TACGATGTGGCCCTGGAGTACTTGGAGGGGCTGGAGTCAAGATAGCGGGGCCCTGGCCTG 4441  
Y D V A L E Y L E G L E S R

GCCTCCTGCTCTGCCAAACACACTCCCATGGGGCAAGCACTGGAGTGGATGCTGGGCTA 4561  
CCAAGGAGGAGCTTAGCAAGTCTGCACCCACCCACCTCCATAGGGTCTGCAGGCCT 4681  
GGGACTCAGGCCAAGGGGGTTGGCAGGATCCTGGGTTTTGGGAGGGATGAGTGAGGCCCT 4801  
GATGTACTGGGACTTGGCATTAGGATTCCATCTGGGGGACCCCTGAAGGTCCCCCCA 4921  
AGCGCCCTCCTCCCACTGCCCCCTCCAGCCCTGAGATATTTGCTCACTATCCCTCCC 5041  
TCCATGGGGGGCTCCTTCCCTGCCTGACCACTGTTGCAGAATGAAGTCACCTCGCCCC 5161  
TCTGCAAGGCTGAACAACAGCCCTGGGGTTGAGGCCCTGTGGCTCCTGGTCAGGCTGC 5281  
AGAGGTAGGACCACTGCTTTTTGTTTCTTTGTTATTTTGGTTGGGTGGGTGGGAAGG 5401  
CTGTAGATGACTACTGACCTACCTCGAGGGGGCTGTGGGGAGGCATAAGCTGATGTT 5521  
A 5581

Fig. 2f